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Influence of γ -irradiation on the optical properties of nanocrystalline tin phthalocyanine thin films
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Abstract

SnPc in powder and thin film forms were found to be polycrystalline with monoclinic lattice. The morphological and structural properties of the obtained SnPc films were characterized from electron scanning micrographs and X-ray diffraction patterns. In the γ -irradiated film the formed agglomeration increased the crystallite size. The refractive index, n , and the absorption index, k , were obtained from spectrophotometric measurements of the transmittance and reflectance at normal incidence of light in the wavelength range 200-2500 nm. γ -Irradiation films shifted the transmission edge toward lower wavelength and increase the optical energy gap value. According to the analysis of dispersion curves, the dielectric constants and dispersion parameters were obtained. The absorption analysis performed indicated indirect allowed electronic transitions and the optical energy band gap 2.84 and 2.63 eV for the as-deposited and the γ -irradiated films, respectively. © 2009 Elsevier B.V. All rights reserved.

Author Keywords

Effects of γ -irradiation; Optical properties; SnPc thin films

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